CalREDIE Electronic Laboratory Reporting (ELR)

CALREDIE ELR IMPLEMENTATION PROCESS
A REFERENCE GUIDE

Prepared by California Department of Public Health (CDPH)

Contents

Version Control

Version	Date
1.0	May 13th 2014

1.0 Introduction

CalREDIE Electronic Laboratory Reporting (ELR)

California Reportable Disease Information Exchange Electronic Laboratory Reporting (CalREDIE ELR) allows laboratories to comply with public health reporting requirements for reportable diseases through an automated, secure communication process. Submitting facilities extract reportable laboratory result data from their information systems and construct a standard formatted message to send to the state and local public health agencies through CalREDIE.

Submitter Outreach and Recruiting:

The CalREDIE ELR team reaches out to laboratories based on a priority system focusing first on those that perform the largest number of tests related to reportable diseases in California patients. The team discusses high-level issues such as the applicable regulations governing electronic laboratory reporting, the standard format of the laboratory result message, and the means of connecting to the California Department of Public Health (CDPH).

High-level description of message flow:

ELR submitters send standard, formatted messages via secure messaging through the CDPH HIE Gateway. CDPH message intake systems perform message format analysis and routing based on the content of the message. All submitters who send a standard electronic laboratory result message to CDPH receive a standard message of receipt for their submission, even if the submitted message contains formatting errors.

CalREDIE ELR will replace traditional methods of laboratory reporting in jurisdictions participating in CalREDIE. CalREDIE ELR provides for more rapid reporting to public health and reduces the administrative burden of reporting. Immediate reporting via phone may still be required for selected diseases and conditions by state regulations (see below).

1.1 Technical Requirements Overview

1.1.1 Technical Requirements
1. The ELR submitter must generate a valid HL7 2.5.1 ORU_R01 message to send public

health reportable laboratory results to CalREDIE.

2. The ELR submitter must connect and send a secure SOAP message through the CDPH HIE Gateway.

3. The ELR submitter must map reportable tests to LOINC version 2.40 or more recent version.

4. The ELR submitter must map reportable results to SNOMED CT March 2012 Release or more recent version.

5. The ELR submitter must accurately extract and send all results which are reportable to public health agencies based on California Code of Regulations Title 17, Section 2505. ELR does not replace a laboratory's responsibility to call the local health department immediately when Title 17, Section 2505 list (e)(1) agents are suspected or identified. Title 17, Section 2505:
http://www.cdph.ca.gov/programs/sss/Documents/Title17Sec2505-01-14.pdf

1.1.2 Transport method

ELR submitters must register and connect to send reports to CalREDIE through the CDPH Health Information Exchange Gateway.

http://hie.cdph.ca.gov/

Upon approval for submission through the CDPH HIE Gateway, the submitter receives connection credentials, including SOAP instructions, two-year X.509 digital certificate and a link to the CDPH HIE Gateway web services definition language (WSDL). The credentials and SOAP instructions allow a submitter to connect to the web service in order to send secure SOAP messages containing the HL7 ELR payload.

1.1.3 Message standard

The HL7 v 2.5.1 ORU message payload must comply with HL7 requirements for ELR to CalREDIE as set forth in the CalREDIE ELR2PH Companion Guide available at http://cdph.ca.gov/data/informatics/tech/Documents/CalREDIE_ELR2PH_HL7_2.5.1_Companion_Guide_July2012.pdf. The CalREDIE Companion Guide is a constrained HL7 v2.5.1 profile for California. This constrained profile supplements the HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health (US Realm), Release 1.

The full HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) Informative Document published in February 2010 can be obtained from HL7 International after registration at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=98, but is also available at http://www.dhhr.wv.gov/oeps/disease/documents/meaningful-use/hl7-251-

guide.pdf

The submitter must be able to receive and process HL7 acknowledgement/negative acknowledgement (ACK/NAK) messages. CDPH automated processing provides an HL7 ACK/NAK receipt for each message that an organization submits. This is the only record of messaging that CDPH provides to the submitter. The submitter is encouraged to retain message receipts in order to substantiate message submission.

1.1.4 Required HL7 segments
These segments are required. Submitters may send other segments.

Segment	Name
MSH	Message Header
SFT	Software
PID	Patient Identification
ORC	Common Order
OBR	Observation Request
OBX	Observation
SPM	Specimen

1.1.5 Patient Information
CalREDIE uses an algorithm to identify patient matches in the system.

Patient Matching – Patient matching matches the person in the ELR result with the person in CalREDIE. There are three patient matching rules within CalREDIE:

- Medical Record Number + Reporting Laboratory + Gender
- Social Security Number + DOB + Gender
- Last Name + First Name + DOB + Gender

If any of the three rules are met, CalREDIE assumes a match. If CalREDIE does not find a match, a new person with a disease incident is created. If a person's gender does not match due to typographic error or to a change of gender, CalREDIE will not match that person to an existing incident even if all other pieces of personal information are identical. In our efforts to minimize duplicates it is imperative that the patient information specified above remains consistent and accurate.

1.1.6 Addresses
Numerous fields in HL7 ORU messages support required addresses, including patient address, requesting provider address, performing organization address, and others. The submitter must provide standardized, valid US Postal Service mailing addresses. For a patient lacking a valid mailing address, CDPH assigns ELR incidents to a given jurisdiction based on the requesting

provider address, which must be a standardized, valid US Postal Service address.

Submitters may manually confirm validity of addresses with the US Postal Service: https://tools.usps.com/go/ZipLookupAction!input.action

Other products and services supporting automated address validation are available from the US Postal Service and other vendors.

1.1.7 Standard Codes
ELR requires use of standard vocabulary and code sets for many common fields such as ethnicity, race, and gender, in addition to test order codes, test result codes, and specimen codes. Please refer to section 3.3 for vocabulary requirements.

1.1.8 Other Field level details
Field level detail is not provided in this document. Please see the CalREDIE ELR2PH Companion Guide, in conjunction with the HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health (US Realm), Release 1.

1.1.9 Reportable Findings
Laboratory findings which are reportable to public health agencies appear in California Code of Regulations Title 17, Section 2505 (17CCR2505) found here.   Please refer to the regulation for details regarding timely reporting requirements and other instructions regarding specimens and isolates.

1.2 On-boarding Process Overview
The ELR onboarding process is an orderly progression from recruiting and registration to ELR testing, culminating in a move to ELR production.

1.2.1 Prior to Onboarding
Prior to beginning the onboarding process, the would-be ELR submitter should:

1. Identify tests which may yield results which are reportable to a public health agency based on the list of diseases in California Code of Regulations Title 17, Section 2505. Complete the Disease Category Checklist in Appendix A to indicate reportable tests performed in-house. Guidance and the list of diseases can be found at www.cdph.ca.gov/HealthInfo/Documents/LaboratoryReportableDiseasesInstructionsList -e2.pdf and at www.cdph.ca.gov/HealthInfo/Documents/LabReportingInstructionsList- e1SelectAgents.doc.pdf.
2. Develop logical query and data extraction processes to identify and select required elements for reports to be submitted under California Code of Regulations Title 17,

Section 2505, based on the required elements listed in the CalREDIE ELR2PH Companion Guide.

3. Develop trigger logic to send the result by ELR message when the result is suggestive of any disease listed in Title 17, Section 2505.
4. Determine a high-level timeline for complying with Title 17, Section 2505 by engaging in ELR.

1.2.2 Onboarding

The formal steps of the onboarding process:

1. Register at the CDPH HIE Gateway
2. Schedule an onboarding phone call with the Informatics Analyst
3. Establish CDPH HIE Gateway SOAP connectivity for ELR
4. Contact the ELR Analyst and discuss intent to test
   - We can accept batched or real time ELR messages
   - We expect daily submissions, unless there are circumstances discussed prior to testing with the ELR Analyst
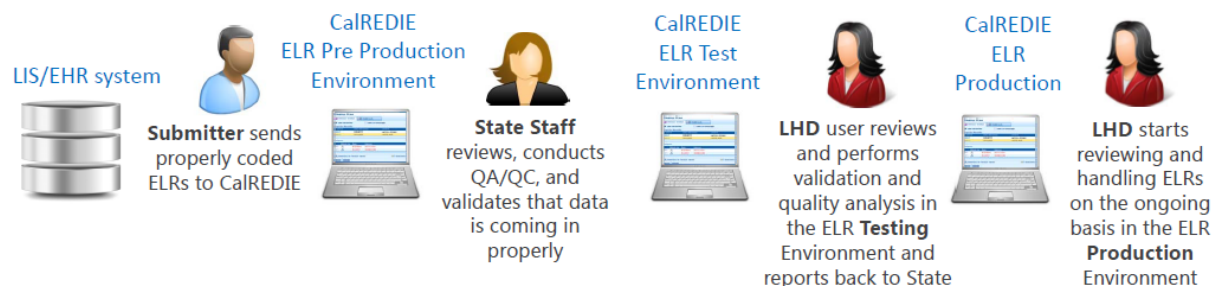
ELR Pre-test:

5. Begin sending test HL7 ELR messages for structural validation
6. Achieve and demonstrate consistent error-free HL7 messaging
7. Begin sending test ELR messages for a cross-section of test results and test types performed by the submitting organization, using fictional data
8. Begin exceptions testing (defined below)
9. Transition to sending real ELR with live data from production systems

ELR User Acceptance Test (UAT):

10. Continue to send live ELR daily without errors (it is permissible to send more frequently than daily)
11. Collaborate with the local health department to address reporting questions and

resolve discrepancies (optional)

12. Complete exceptions testing

Move to ELR Production

13. Upon successful completion of UAT, the submitter's ELR feed is directed to production without any action on the part of the submitter

1.3 Meaningful Use (MU)

According to the Centers for Medicare and Medicaid Services (CMS) Electronic Health Records Incentive Program, submitting electronic reportable laboratory results to public health is one of several measures that may enable hospitals to meet the public health requirements of MU. For more information, please see the CMS, EHR Incentive Program:

http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Meaningful_Use.html

2.0 On-boarding Process

Submitters often ask about the duration of the Onboarding Process. The duration of this process depends on the submitter's experience, ability, and focus on ELR. Intervening priorities, working with external system vendors and standard coding efforts often add time and complexity to ELR onboarding. With the very best of experienced ELR submitters, they can progress from testing to production in as little as six weeks. The more common experience is approximately six months.

General Progression of ELR:

		Progression of ELR		
Submitter	Fax	Faxing Lab results to Local Health Jurisdiction		
	ELR	Testing ELR fictional data	Ongoing ELR live data	
CDPH		ELR Pre-test	UAT	Production >>>>>>> ongoing
Local Health Department		ELR Pre-test	UAT	Production>>>>>>>> ongoing

2.1 Step 1 - Registration

Register at the CDPH HIE Gateway. The submitter provides organizational identification and other details during registration. The CalREDIE ELR team processes the submitter's request for enrollment into CalREDIE ELR, which results in a series of secure emails to

the submitter containing their submitter credentials.

2.2 Step 2 - Connectivity

Establish CDPH HIE Gateway web services SOAP connectivity for ELR. When the CalREDIE ELR team approves a submitter for ELR testing, the submitter may commence sending ELR test messages.

Pre-test

Submitters first test in the Pre-ELR Testing Environment with a recommended timeframe of 6-8 weeks prior to progressing.
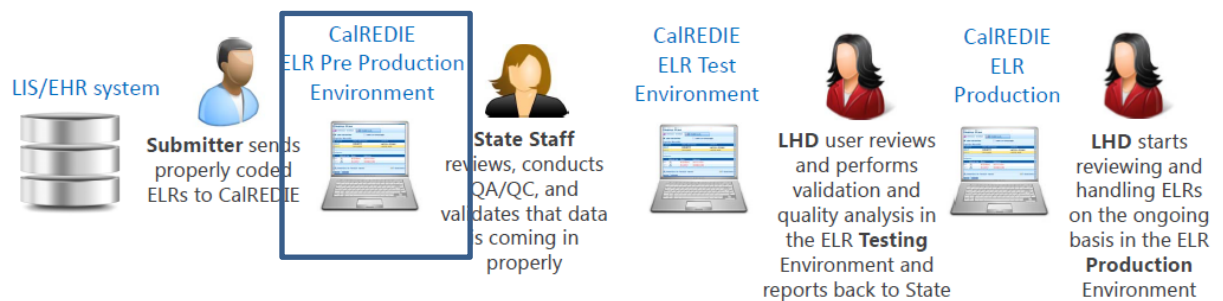
2.3 Step 3 - Message testing

Begin sending test HL7 ELR messages using *fictional ELR* data for structural validation testing. The automated CDPH intake process performs structural validation and returns detailed error messages to the submitter.

2.4 Step 4 - Message proficiency

Demonstrate consistent error-free HL7 messaging. The submitter is responsible for understanding and correcting message structural issues.

2.5 Step 5 - Messaging all reportable results in compendium

Using *fictional ELR data*, send test ELR messages constituting a cross-section of test results and types that are performed by the submitting organization.

2.6 Step 6 - Message exceptions

Completing the Disease Category Checklist in Appendix A informs CDPH of tests performed in-house. The ELR team will also make a completed checklist available to the Local Health Jurisdiction upon request. When a submitter starts sending *live data* through its ELR feed, the CalREDIE ELR team expects a naturally occurring flow of test results. This naturally occurring flow generally includes many different reports that occur frequently in the course of normal laboratory business. There are some test

results which rarely or may never occur in the natural course of laboratory business, such as those indicating anthrax, tularemia, hemorrhagic fevers, and other rare diseases. These types of results are called exceptions.

Exceptions testing includes "forcing" artificially generated test results through the ELR system in order to demonstrate that the submitter's systems can effectively report such a result if it *were* to occur. Exceptions testing should be done for all tests that your facility has the ability to perform in-house that have not been sent in the regular ELR feed. Exceptions testing must be completed prior to moving a submitter to ELR production. These messages flow to the environment where the submitter's feed is directed, which can include Pre-test with no LHJ access or UAT with LHJ access.

2.7 Step 7 - Transition to live ELR several weeks prior to entering UAT

When the submitter demonstrates structural message competence, they may commence sending *live ELR data* to the CalREDIE ELR Pre-Test environment, which is a working copy of CalREDIE production data. Submitting *live ELR* must be done in conjunction with ongoing submission of data through existing reporting systems to allow the State and Local Health Department to perform QC on the ELR feed. The CalREDIE ELR team analyzes this live ELR data stream to evaluate the following requirements:

1.   The submitter is sending the required information in their result messages.

2.   The submitter is sending standard codes to describe their lab tests, results, and specimen types.

3.   The submitter is not sending results which are NOT reportable based on laboratory reporting regulations.

ELR User Acceptance Test (UAT):
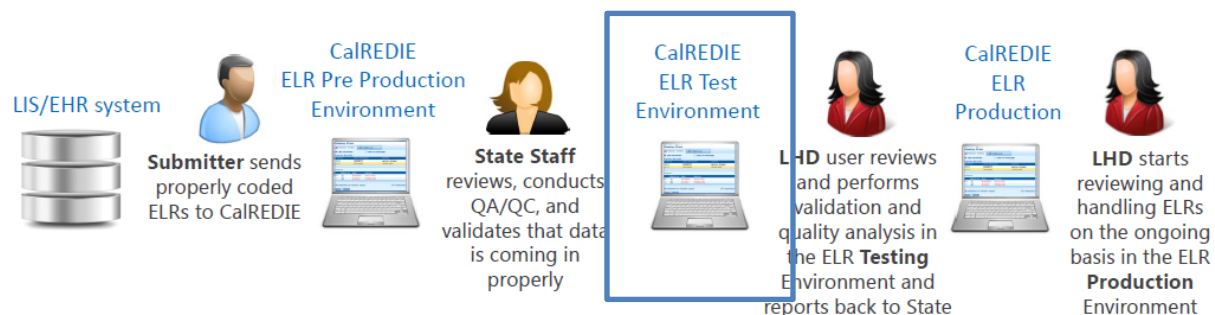
User acceptance testing (UAT) takes place in the "ELR Statewide Testing" environment. Users in

UAT include stakeholders within the local health jurisdictions as well as state program staff. Any local health jurisdiction that will be using ELR is encouraged to participate in UAT. LHDs are encouraged to participate in UAT to evaluate the laboratory data feed and understand the totality of the lab reports that a given submitter is planning on reporting via ELR.

UAT is the local health jurisdiction's best opportunity to evaluate selected reports arriving by both ELR and other traditional means, such as fax or pdf. There is no requirement for a local health jurisdiction to participate in UAT. The local health jurisdiction is encouraged to raise questions regarding the reports from a given submitter directly to the ELR team by phone/email and/or during the weekly ELR Check in calls. The ELR Issue log provides a guide for the type of information that the CalREDIE ELR team will need in order to properly investigate any questions.

The authority to stop a single jurisdiction submitter's move to production rests with its local health jurisdiction. For multi-jurisdiction submitters, the CalREDIE ELR team will facilitate multi-jurisdiction discussion of concerns and analysis of ELR discrepancies. Several jurisdictions may arrive at consensus for a submitter's move to production or remediation in a future cohort.

Submitter Cohorts organized for UAT:

Hundreds of high-priority ELR target submitters operate in California. These submitters are organized into quarterly cohorts. Hospitals are prioritized by size using bed-counts; public health laboratories are prioritized by population served; commercial laboratories are prioritized by ELR readiness. Smaller hospitals that are interested and ready to join ELR are welcome, even if the CalREDIE ELR team is not actively recruiting those submitters. No submitter is turned away. All submitters are slotted into cohorts for UAT based on their technical readiness. Cohorts move through the onboarding process together in order to maintain organization and structure for the onboarding process allowing the CalREDIE ELR team to adequately support the submitters and the LHJs during the testing processes. Submitters who are not ready when a cohort begins must wait for the next cohort.

CalREDIE ELR Production schedule through 2014:

2013												2014												2015 …						
J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M		
	Cohort 1……………………								Production 10/1/2013																					
		Cohort 2…………………								Production 12/3/2013																				
				Cohort 3………………								1/28/2014	Production 3/18/2014																	
	UAT					Cohort 4……………………								4/14	Production 6/2014															
	Production Actual						Cohort 5……………………								7/14	Production 9/2014														
	Production Planned							Cohort 6 …………..…………								10/14	Production 12/2014													

2.8 Step 8 – Message testing

Send test HL7 ELR messages using *live ELR data* for structural and content validation testing. The automated CDPH intake process performs structural validation and returns detailed error messages to the submitter. Faxing should continue unless notified by the ELR Analyst. All of the data in the UAT environment is available for review, but it is not retained or migrated into production.

2.9 Step 9 - Message proficiency

Demonstrate consistent error-free HL7 messaging. The submitter is responsible for understanding and correcting message structural issues. Trigger logic should be set to filter only reportable conditions as specified by Title 17 Section 2505 into CalREDIE.

2.10 Step 10 – Complete message exceptions testing

Demonstrate that the submitter's systems can effectively report rare results. Exceptions testing takes place in ELR Pre-testing and UAT.

2.11 Step 11 - Complete UAT

Collaborate with the local health jurisdiction to address reporting questions and resolve discrepancies. The default outcome of UAT is that a submitter graduates to ELR production. The local health jurisdictions may delay a submitter's move to production.   The LHJ has ultimate control over the submitter's move to production when the submitter operates within that one jurisdiction, The CDPH CalREDIE ELR team facilitates resolution of reporting issues between the submitter and the LHJs if the submitter is operating in several jurisdictions.

ELR Production
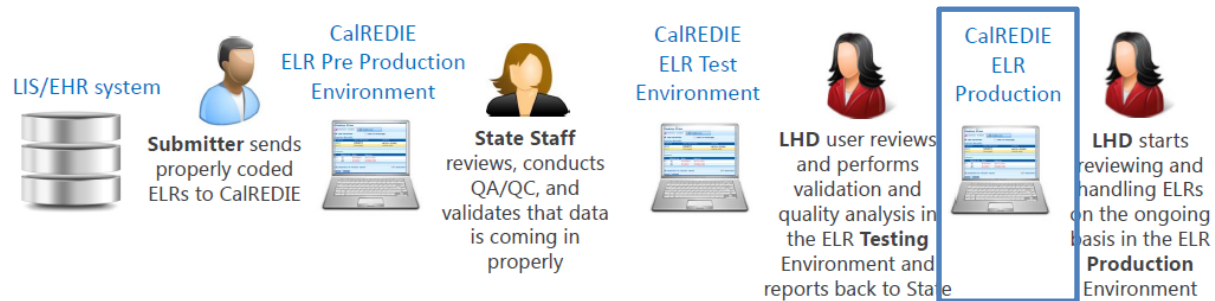
Shifting to Production:

The submitter makes no changes in order to move from UAT to production. The change is entirely technical. The CalREDIE ELR team, in conjunction with the CalREDIE technical team, makes the change behind the scenes. The submitter observes no noticeable difference in ELR submissions or ELR receipt messages. The local health jurisdictions will see the new submitter's ELR feed appear in CalREDIE production and they will no longer see a given submitter's ELR in UAT.

2.12 Step 12 - Enter ELR production

Upon successful completion of UAT, the submitter's ELR feed is directed to production without any action on the part of the submitter.

2.13 Step 13 - Transition to ELR Maintenance

Maintaining the ELR feed:

The CalREDIE ELR team relies on a collection of sources to properly monitor a submitter's ELR feed. These sources are driven by both human intervention and automated reporting such as:

1. ELR issues reported to the CalREDIE ELR team by local health jurisdictions
2. ELR discrepancies observed by the CalREDIE ELR team
3. ELR problems reported to the CalREDIE ELR team by the submitter
4. Automated error reports and alarms in the CDPH HIE Gateway, Rhapsody, and CalREDIE
5. Automated submitter reports which are sent every two hours during the business day– These reports contain a listing of ELR submitters and the date/time of the last successful transaction completed by a given submitter
6. Unrecognized LOINC and SNOMED codes which trigger an unknown code response are monitored by the CalREDIE ELR team who will add valid codes to the CalREDIE laboratory

cross reference.

3.0 Implementation Guidance and Resources

3.1 Secure Message Transfer
CDPH and CalREDIE ELR supports SOAP secure messaging. Register at the CDPH HIE Gateway in order to access the Web Service Definition Language and SOAP header guidance.

3.2 HL7 Guidance and Resources
It is the submitter's responsibility to acquire HL7 capability and competency. For the purposes of CalREDIE ELR, there are two required resources:

1. HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health (US Realm), Release 1

2. CalREDIE ELR2PH Companion Guide found at cdph.ca.gov/data/informatics/tech/Documents/CalREDIE_ELR2PH_HL7_2.5.1_Companion_Guide_July2012.pdf

3.3 Vocabulary
1. Submitters must identify public health reportable laboratory tests using current LOINC coding.

2. Submitters must identify public health reportable laboratory results using applicable LOINC codes if the usage of a particular LOINC code includes both test and result expressions. Submitters must identify public health reportable laboratory results using applicable SNOMED-CT Concept ID.

3. Submitters must identify specimens using SNOMED-CT Concept ID for a given specimen.

4. For other data elements, the submitter must use valid and current terminology as published by either hl7.org or by CDC through the Public Health Information Network Vocabulary Access and Distribution System (PHINVAD).

4.0 Additional Background Information

4.1 CalREDIE Environments

An ELR candidate progresses through three environments: the ELR Pre-Test environment, the

ELR Statewide Testing environment where UAT takes place, and the Production environment.

<u>Pretest:</u>

1. The 6-8 week period of testing is utilized by the CalREDIE ELR team and the submitter for technical analysis and to test of the laboratory data feed.
2. Structural and content testing is done here and content testing is done only with live data.
3. This environment supports fictional and live data including exceptions testing. Though considered "pre-production," the environment contains a copy of production data.
4. The data is NOT preserved or retained in this environment, and is regularly purged of ELR data.

<u>ELR Statewide Testing:</u>

1. The 6 weeks of testing in this environment is reviewed by CDPH and the Local Health Jurisdiction.
2. Structural and content testing and validation take place in this environment, including comparisons between paper and ELR.
3. The environment can support live data and exceptions testing. It is considered "pre-production," and contains a copy of production data for use during testing.
4. The data is NOT preserved or retained, and the environment is regularly purged of ELR data.

<u>Production:</u>

After UAT is complete, the laboratory data daily feed is directed to the Production environment, which is the environment where 61 LHDs perform their surveillance, investigation, and disease control work.

4.2 Blocking selected messages

The purpose of ELR is to support reporting of reportable communicable diseases as defined in state regulations.   The ELR process uses three sequential filtering methods to prevent data that are not needed for this purpose from flowing to CalREDIE.

1. During initial technical meetings with submitters, the CalREDIE ELR team advises the laboratory result submitter to set up their outbound filters such that the submitter does not send selected unauthorized categories of lab test results.
2. The intake mechanism (powered by Orion Rhapsody) evaluates the reported test code and result against a lookup table of prohibited results. When a submitted message

matches a prohibited result, the message is rejected and the return receipt for the message states that a particular "Test code is not supported." The intake process deletes any message containing a prohibited test code.

3. The intake mechanism (powered by CalREDIE) evaluates the reported test code and result against a second lookup table, which provides a logical gate to prohibit CalREDIE from importing a message containing the prohibited test code.

Currently blocked messages include HIV/AIDS-related lab results in addition to selected results that are not laboratory-reportable, such as Methicillin-resistant *Staphylococcus aureus* (MRSA) and herpes. Submitters should code systems for the capability of sending HIV/AIDS related laboratory results through ELR, while preventing these reports from actually flowing to CDPH until such time as CDPH is capable of handling these reports.

4.3 Limitations of ELR

While the CalREDIE ELR team strives to ensure that an ELR submitter is competent in ELR before moving to UAT, there are limitations to ELR:

1. Both submitter sending logic and CalREDIE ELR filtering and receiving logic often operate on the information contained within a given message. ELR systems may not be capable of integrating and synthesizing information across multiple messages or multiple sources. For example, it is not possible for CDPH to prevent most ELR of a given disease but allow some ELR of that disease exclusively for outbreaks, or to allow or prevent ELR based on a collection of patient demographics or characteristics.

2. The CalREDIE ELR team does not have access to the submitter's data systems. The ELR submitter does not have access to CalREDIE. Other than reminding all submitters of the diseases listed in the laboratory reporting regulation, the CalREDIE ELR team is unable to determine what the submitter is NOT reporting. It is incumbent upon the ELR submitter to ensure compliance with current laboratory reporting regulations.

3. For CalREDIE users only: CalREDIE automated ELR actions are intended as a labor-saving mechanism. They are set up to function based on a CalREDIE disease category. These automated actions are typically handling over ninety percent (90%) of ELR arriving across all jurisdictions. Automated actions apply to all jurisdictions using CalREDIE. The system is not designed to accomplish a set of automated actions in one jurisdiction, while accomplishing a different set of automated actions in another jurisdiction.

4. CalREDIE ELR intake logic cannot compensate for poor quality data arriving by ELR. The system cannot compensate for incomplete or incorrect information, data entry errors, typographical errors, or other data quality issues. This is especially significant in person matching, which requires an exact match of Last Name, First Name, Gender, and Date of

Birth. For example, Jim, James, J. and Jimmy are not matches. Submitters are required to ensure that complete and correct information is reported.

5. A submitter's ELR reporting criteria ("trigger logic") is logically constructed around the language in 17CCR2505 which contains the phrase "…suggestive of disease…." This phrase leaves room for interpretation and the submitter's ELR reporting criteria may need ongoing tuning and adjustment.

Appendix A: Disease Category Checklist

Condition	Performed in submitter laboratory (yes/no)	Always referred to another laboratory (yes/no)	Successfully sent test message via ELR (yes/no)	Successfully sent live message via ELR (yes/no)
Acid Fast Bacillus (AFB)				
Anaplasmosis/Ehrlichiosis				
Anthrax				
Bordetella pertussis				
Borrelia burgdorferi				
Botulism				
Brucellosis				
Burkholderia				
Campylobacteriosis				
Chancroid				
Chlamydia trachomatis				
Coccidioidomycosis				
Cryptosporidiosis				
Cyclosporiasis				
Dengue				
Diphtheria				
Encephalitis, arboviral				
Escherichia coli / STEC				
Giardiasis				
Gonorrhea				
Haemophilus Influenzae (Invasive)				
Hantavirus Infections				
Hepatitis A				
Hepatitis B				
Hepatitis C				
Hepatitis D				
Hepatitis E				
Influenza - Novel Strain H1, H3, H5 by PCR				
Legionellosis				
Leprosy (Hansen Disease)				
Leptospirosis				
Listeriosis				
Malaria				

Measles (Rubeola)				
Mumps				
Mycobacterium tuberculosis				
Neisseria meningitidis (sterile site isolate)				
Plague				
Poliovirus Infection or Poliomyelitis				
Psittacosis				
Q Fever				
Rabies				
Relapsing Fever				
Rickettsia, any species, acute infection				
Rocky Mountain Spotted Fever				
Rubella (German Measles)				
Salmonellosis (Other than Typhoid Fever)				
Shiga toxin (detected in feces)				
Shigellosis				
Smallpox				
Syphilis				
Trichinosis				
Tuberculosis				
Tularemia				
Typhoid				
Vibrio Infections				
Viral Hemorrhagic Fevers (e.g.Crimean-Congo, Ebola, Lassa, Marburg, and others)				
West Nile virus				
Yellow Fever				
Yersiniosis				

Appendix B: Abbreviations

CalREDIE Acronyms and other commonly used acronyms	
17CCR2505	California Code of Regulations Title 17, Section 2505
AIDS	Acquired Immunodeficiency Syndrome
CalREDIE	California Reportable Disease Information Exchange
CDPH	California Department of Public Health
ELR	Electronic Laboratory Reporting
HIE	Health Information Exchange
HIV	Human Immunodeficiency Virus
HL7	Health Level 7
MRSA	Methicillin Resistant *Staphylococcus aureus*
MU	Meaningful Use
LHD/LHJ	Local Health Department/Local Health Jurisdiction
LOINC	Logical Identifiers Names and Codes
PHIN	Public Health Information Network
PHINVADS	Vocabulary Access and Distribution System
RCMT	Reportable Condition Mapping Table
SNOMED-CT	Systematized Nomenclature of Medicine—Clinical Terms
SOAP	Simple Object Access Protocol
UAT	User Acceptance Testing
WSDL	Web Service Definition Language